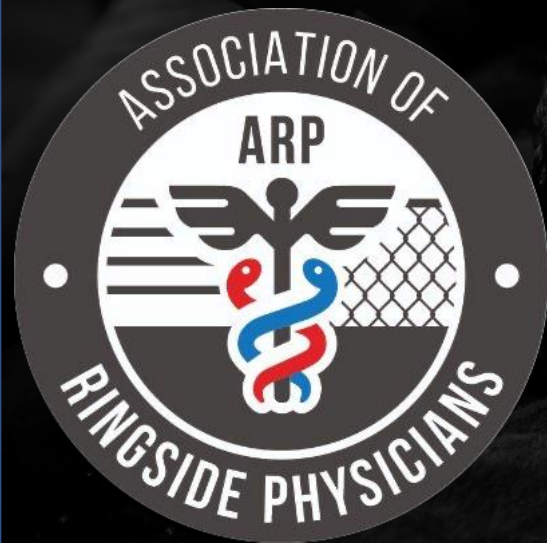


# *Professional Boxing Fatalities From 2000-2019*

Association of Ringside Physicians



*John Neidecker, DO, ATC, FAOASM*



- Ringside Medicine Basics Course – On Demand



**SESSIONS BEGIN FEBRUARY 17TH, 2022**  
**REGISTRATION NOW OPEN**



- 2022 Conference – Weekend of October 15<sup>th</sup>
  - Caesars Palace





- 2023 Conference – Weekend of June 3<sup>rd</sup>
  - Muhammad Ali Center






- Consensus Statement
  - Neuroimaging in Professional Combat Sports

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2022, AHEAD-OF-PRINT, 1-8  
<https://doi.org/10.1080/00913847.2022.2083922>



## Neuroimaging in professional combat sports: consensus statement from the association of ringside physicians

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### ABSTRACT

Professional boxing, kickboxing, and mixed martial arts (MMA) are popular sports with substantial risk for both acute and chronic traumatic brain injury (TBI). Although rare, combat sports athletes have died in the ring or soon after the completion of a bout. Deaths in these instances are usually the result of an acute catastrophic neurological event such as an acute subdural hematoma (SDH). Other causes may include acute epidural hematoma (EDH), subarachnoid hemorrhage (SAH), intraparenchymal hemorrhage (IPH), or a controversial, rare, and still disputed clinical entity called second-impact syndrome (SIS). Neuroimaging or brain imaging is currently included in the process of registering for a license to compete in combat sports in some jurisdictions of the United States of America and around the world. However, the required imaging specifics and frequency vary with no consensus guidelines. The Association of Ringside Physicians (an international, nonprofit organization dedicated to the health and safety of the combat sports athlete) sets forth this consensus statement to establish neuroimaging guidelines in combat sports. Commissions, ringside physicians, combat sports athletes, trainers, promoters, sanctioning bodies, and other healthcare professionals can use this statement for risk stratification of a professional combat sports athlete prior to licensure, identifying high-risk athletes and for prognostication of the brain health of these athletes over the course of their career. Guidelines are also put forth regarding neuroimaging requirements in the immediate aftermath of a bout.



- Stay tuned...
  - Manual – Dr. Varlotta
  - Malpractice for our members





Association of Ringside Physicians

# Journal of Combat Sports Medicine

## MORTALITY RESULTING FROM HEAD INJURY IN PROFESSIONAL BOXING REVISITED: FATALITIES FROM 2000–2019

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**KEYWORDS:** boxing; traumatic brain injury; mortality

**AUTHOR CONTRIBUTIONS:** JN – methodology, data abstraction, analysis, writing; JM – writing

**DISCLOSURES:** N/A

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**DATA SHARING STATEMENT:** the author has no additional data to share.

### Introduction

Dating back to ancient times, boxing continues to be one of the most popular and exhilarating sports, drawing fans from all around the world. Along with its popularity has come continual criticism due to the health risks associated with the sport. There has recently been discussion of whether boxing is ethical, with some of the world's organized medical leadership stating the sport should be banned.<sup>1,2</sup> Recently, the safety and ethics of boxing came un-

dermined by the deaths of two athletes, one from cardiac arrest. The loss of these two athletes was yet another reminder of the risks the sport carries and encouraged medical professionals to continue to search for ways to make the sport safer.

There have been several studies that have revealed some of the risks associated with boxing. Findings have shown that chronic traumatic brain injury occurs in 20% of professional boxers<sup>3</sup> and 15-40% have symptoms of chronic brain injury after retirement.<sup>2</sup> Despite our knowledge of injuries that box-

# Outline

- Background
- New Data
  - How and what was collected
  - Findings





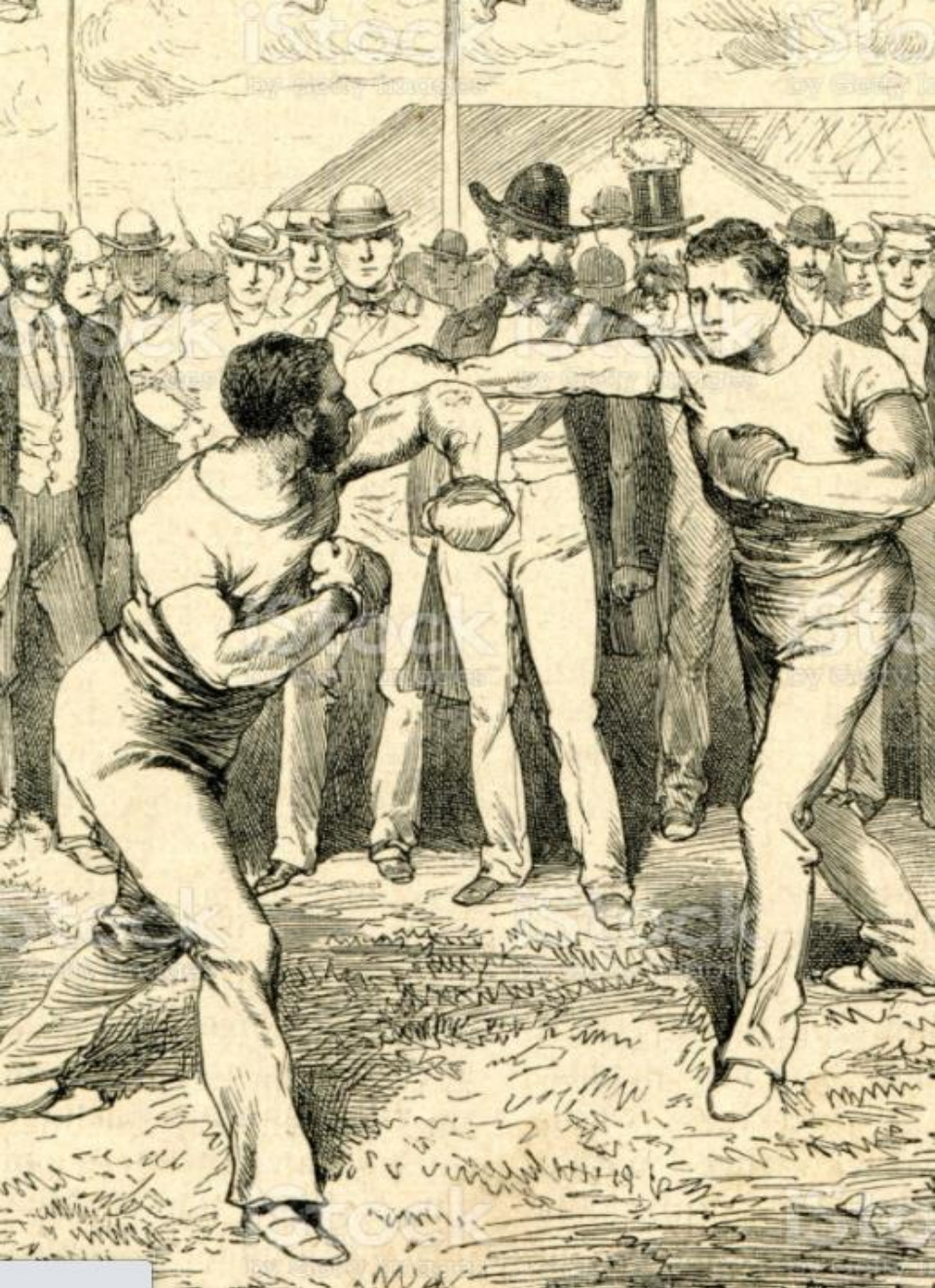


## Background

- Not many studies that have looked into boxing deaths
- Baird et al.
  - Neurosurgery 2010
- 2019 was a particularly tragic year in the United States



- Synopsis
  - 339 professional boxing mortalities from 1950 - 2007
- Findings
  - 79% associated with KO/TKO
    - 64% KO
    - 15% TKO
  - Higher percentage occurred at lower weight classes
  - Significant decrease noted when comparing deaths from before 1983 to after
    - Championship bouts reduced from 15 to 12 after 1983
    - Hypothesized the decline was more due
      - Shorter careers
      - Fewer fights
      - Increased medical oversight and regulations



# Acknowledgments

- Joseph Svinth
  - Manuel Velazquez Collection
  - Currently - 2077 deaths  
am/pro/tough/training
  - Starting from 1724
- BoxRec
  - John Sheppard

# Manuel Velazquez Collection



	A	B	C	D	E	F	G	H	I	J	K	L	M	
	SURVIVOR	DD/MMM	/YEAR	RESULT	RD	DECEASED	AGE	MV	ALPHA	CITY	STATE/CTY/PROV	COUNTRY	WEIGHT	SOURCE/REMARKS
1														
2	Simon Small	20-Sep	1724	KO		John Lambert			lambert	Muzzle Hill	Buckinghamshire	England	ND	Old Bailey Proceedings, 1724, p. 17250630-26. C. briefly scuffled, & (Branding was on
3	Richard Teeling	14-May	1725	KO		Job Dixon			dixon	Covent Garden (Pest Fields)	London	England	ND	Ipswich Journal, t17250630-26. C. briefly scuffled, & (Branding was on
4	Richard Pritchard	25-Nov	1725	KO	3	William Fenwick			fenwick	Moorfields	London	England	ND	London Journal, to settle a quarrel
5	Whitaker	Jan/	1728	KO		John Gretton			gretton	Islington (Copenhagen Fields)	London	England	ND	American Weekly Gretton was on
6	Thomas Hargrave	2-Feb	1729	KO		Henry Hill			hill	London	London	England	ND	(London) Weekly crown. Hargrave convicted of man
7	Richard Wells	21-May	1730	KO		Samuel Biggs			biggs	London	London	England	ND	Old Bailey Proceedings, 1730, p. 17300630-26. C. struck his head, jury ruled mans
8	Phillips	Oct/	1730	KO		Lloyd			lloyd	St. James	London	England	ND	(London) Daily F
9	William Emerson	ND	1732	KO		Andrew Reed			reed	Great Yarmouth	Norfolk	England	ND	Charles John Pal
10	Joseph Greenfield	22-May	1734	KO		John Jones			jones	Hampstead	London	England	ND	London Evening a Crown. The Pri the Nine-pin-Gro The Prisoner stru Wednesday, and I
11	ND	26-Aug	1735	KO		ND			nd	Dublin	Dublin	Ireland	ND	Boston (Massac
12	Andrew Gardner	24-Jun	1742	KO		William Pateman			pateman	Chelsea	London	England	ND	Newcastle (Eng
13	ND	21-Jul	1748	KO		ND			nd	London	London	England	ND	Derby (England
14	ND	2-Dec	1749	KO		ND			nd	Perth Amboy	New Jersey	British North America	ND	New-York (New
15	Charles Troop	6-Jun	1751	KO		George Bartholomew			bartholomew	London	London	England	ND	Derby (England shilling, a coin v on top of Bartho large contusion
16	ND	1-Jan	1752	KO		ND			ND	London	London	England	ND	Derby (England



# Manuel Velazquez Collection

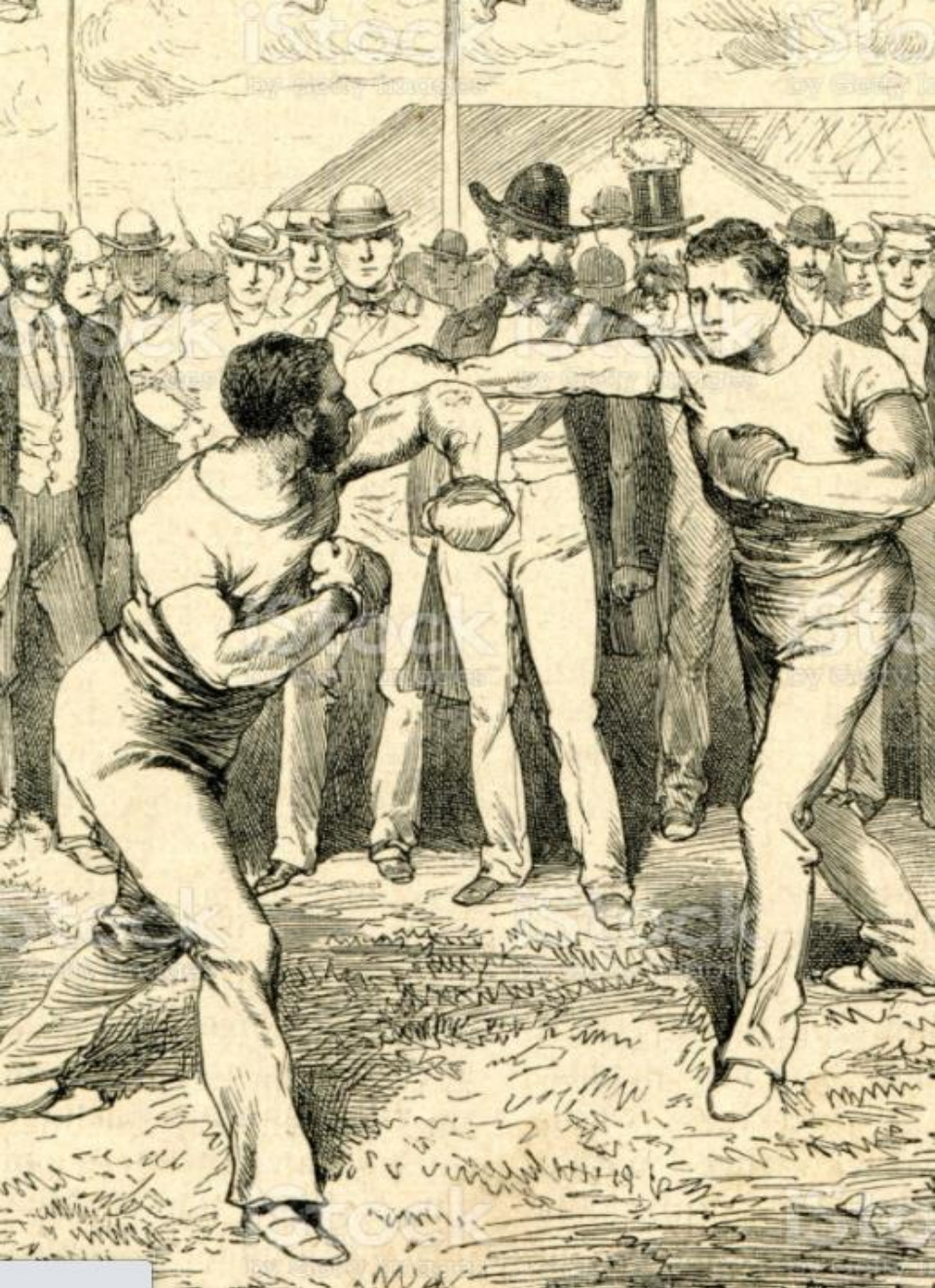


	N	O	
	SOURCE/REMARKS	CHAMPIONSHIP	PRO/A
1			
2	<i>Old Bailey Proceedings Online (www.oldbaileyonline.org, version 6.0, 05 December 2011), February 1725, trial of Simon Small (t17250224-66). The two men fought two times in succession, and a week after the second fight, Lambert died of injuries to his "Head, Back, Belly, and Privy Members." The jury acquitted.</i>		Pro
3	Ipswich Journal, June 25, 1725; London Journal, July 3, 1725; (London) Parker's Penny Post, July 14, 1725; Old Bailey Proceedings Online (www.oldbaileyonline.org), Richard Teeling, killing: murder, 30th June, 1725. The Proceedings of the Old Bailey Ref: t17250630-26. Covent Garden was a major entertainment district in London. Both men were hackney coachmen. Dixon and another man, John Francis, had fought six or seven minutes. Francis tired, and quit. Dixon challenged anyone else. Teeling accepted. They briefly scuffled, and then Dixon fell and did not get up. He was carried home, where he died next day. The surgeon and apothecary opined that cause of death was either skull fracture or neck fracture. Teeling was convicted of manslaughter, and sentenced to branding. (Branding was on the thumb, with an "M" for murder. The idea was that a person could receive the benefit only once. Branding took place in the courtroom, in front of spectators. The practice did not end until the early nineteenth century.)		Pro
4	London Journal, February 12, 1726; (London) British Journal, February 12, 1726; Old Bailey Proceedings Online (www.oldbaileyonline.org), Richard Pritchard, killing: murder, 2nd March, 1726. The Proceedings of the Old Bailey Ref: t17260302-96. The men decided to settle a quarrel with a prizefight. Pritchard knocked Fenwick down three times, using a left to the head. The third time, Fenwick did not get up, and he died an hour later. The surgeon said death was caused by blood "spilt on the Brains." The jury ruled accidental death.		Pro
5	<i>American Weekly Mercury (Philadelphia, Pennsylvania), May 23 1728. The bout took place at Stooke's Amphitheatre and lasted about 25 minutes. Both men were exhausted, and the final blows were given while Whittaker was on his knees and Grelton was on the ground.</i>		Pro
6	(London) Weekly Journal or British Gazetteer, September 6, 1729; Old Bailey Proceedings Online (www.oldbaileyonline.org), Thomas Hargrave, killing : murder, 27th August, 1729. The Proceedings of the Old Bailey Ref: t17290827-4. The two men fought for half a crown. Hargrave won the bout, and the two men went to an alehouse to have a drink. Hill put his head against the chimney, and died. The surgeon found much blood in Hill's abdomen, and attributed death to the bursting of blood vessels during a fall. Hargrave was convicted of manslaughter and sentenced to branding		Pro
7	<i>Old Bailey Proceedings Online (www.oldbaileyonline.org, version 6.0, 05 December 2011), June 1731, trial of Richard Wells (t17310602-19). Biggs had thrown Wells at least two times before Wells through Biggs. However, when he fell, Biggs struck his head on a cartwheel. He remained unconscious following the fall, and died following morning. The surgeon said there was no fracture of the skull, but on autopsy, there was more than four ounces of coagulated blood on the brain. The jury ruled manslaughter; the punishment was branding.</i>		Pro
8	(London) Daily Post, October 17, 1730. The verdict was that Lloyd died a natural death. The constable disagreed, and he and the coroner began physically fighting in the courtroom.		Pro
9	Charles John Palmer, The Perilousness of Great Yarmouth, with Greston and Southtown, (Great Yarmouth: George Nall, 1872), 89.		Pro
10	London Evening Post, May 30, 1734; Old Bailey Proceedings Online (www.oldbaileyonline.org), Joseph Greenfield, killing: murder, 30th June, 1734. The Proceedings of the Old Bailey Ref: t17340630-3. From the Old Bailey: "The Deceas'd said, he'd fight any Man for a Crown. The Prisoner, who was a Stranger to him, began to strip; but said he had not a Crown to venture, and so the Deceas'd and he agreed to fight for Love, as they call'd it. They boxt fairly; the Deceas'd had the better, and the Prisoner said he would fight no more, in the Nine-pin-Ground among Black-guards; but would fight it out in a Room. The Deceas'd was for having it out in the Ground. Then the Prisoner clapp'd him on the Back, and call'd him a good Lad. They shook Hand three times very lovingly, and went to boxing again. The Prisoner struck the Deceas'd upon the Temples, which made him stagger, and as he was falling the Prisoner kick'd him on the Breast and the Groin, and he fell down, and lay for dead; but he was brought a little to himself in about half an Hour. This was on a Wednesday, and he dyed on the Saturday following." Greenfield was convicted of manslaughter.		Pro
11	<i>Boston (Massachusetts) News-Letter, February 13, 1735. Two gentlemen's servants were boxing in the street. Squire Westley's coachman went to the stable, vomited blood, and died.</i>		Pro
12	<i>Newcastle (England) Courant, June 25, 1742; Ipswich (England) Journal, July 2, 1742. Cause of death was a blow to the temples. Gardner was arrested, along with his father (who abetted the fight).</i>		Pro
13	<i>Derby (England) Mercury, July 28, 1748. Two servants boxed a match lasting about three quarters of an hour. One of them died about an hour afterwards.</i>		Pro
14	<i>New-York (New York) Gazette, December 4, 1749. Two seamen decided to try a "Tryal of Skill at Boxing." Afterwards, they went back inside the bar, and drank some more. Then one of the fighters died. The other promptly fled.</i>		Pro
15	<i>Derby (England) Mercury, June 13, 1751; Old Bailey Proceedings Online (www.oldbaileyonline.org, version 6.0, 05 December 2011), July 1751, trial of Charles Troop (t17510703-39). The pair met in an alehouse, and then fought for a prize of a shilling, a coin worth 1/20th of a pound, meaning its current money would be about £6. The men took off their shirts and waistcoats, and shook hands. Their fight lasted about twenty minutes. There were several knockdowns, and once, Troop fell on top of Bartholomew, with a knee in his guts. The crowd called shame, but the fight continued. Bartholomew lost. He was carried home in a coach. His wife said he was bruised all over, "as black as a negro." He died next morning. There was a large contusion on his scrotum, and a skull fracture. Troop was convicted of manslaughter, and sentenced to branding.</i>		Pro
16	<i>Derby (England) Mercury, January 2, 1752. A chairman and a groom agreed to a prize fight for a prize of a guinea. They met at Hyde Park, and boxe. The groom died. The chairman was arrested.</i>		Pro

# Manuel Velazquez Collection



	P	Q	R	S	
	PRO/AM/TOUGHMAN	TYPE	WHERE	CAUSALITY/LEGAL	
1					
2	Pro		Later	Misadventure	
3	Pro	Brain injury	Ring	Blows: Manslaughter	
4	Pro	Brain injury	Ring	Misadventure	
5	Pro	Brain injury	Ring		
6	Pro		Ring	Fall: Manslaughter	
7	Pro	Brain injury	Ring	Fall: Manslaughter	
8	Pro		Ring	Misadventure	
9	Pro		Ring		
10	Pro	Brain injury	Ring	Blows: Manslaughter	
11	Pro	Brain injury	Ring		
12	Pro	Brain injury	Ring		
13	Pro		Ring		
14	Pro	Brain injury	Soon after		
15	Pro	Brain injury	Ring	Blows: Manslaughter	
16	Pro		Ring		



# Acknowledgments

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## Teon Kennedy v Francisco Rodriguez 10/9 scoring



Friday 20, November 2009



Blue Horizon, Philadelphia, Pennsylvania, USA

### Super Bantam Contest, 12 Rounds

vacant USBA Super Bantam Title

referee

Benjy Esteves Jr

scorecard

judges

scorecard

86

84

86

83

87

83

Teon KennedyFrancisco Rodriguezwon TKO  
round 10

ranking



11.48 points

after fight

1.249 points

details

23

25

orthodox

stance

orthodox

5' 6" / 168cm

height

5' 5" / 165cm

72" / 183cm

reach

68" / 173cm

record

13

won

14

0

lost

2

1

drawn

0

5

KOs

8





- We took the Manuel Velazquez Collection and correlated to BoxRec
- Total Info Collected
  - Bout Date
  - Bout Location
  - Bout Result
  - Weight Class
  - Bout Round End and Bout Round Scheduled
  - Record and Winning Percentage of Deceased & Opponent
  - Cause of Death???

# Limitations

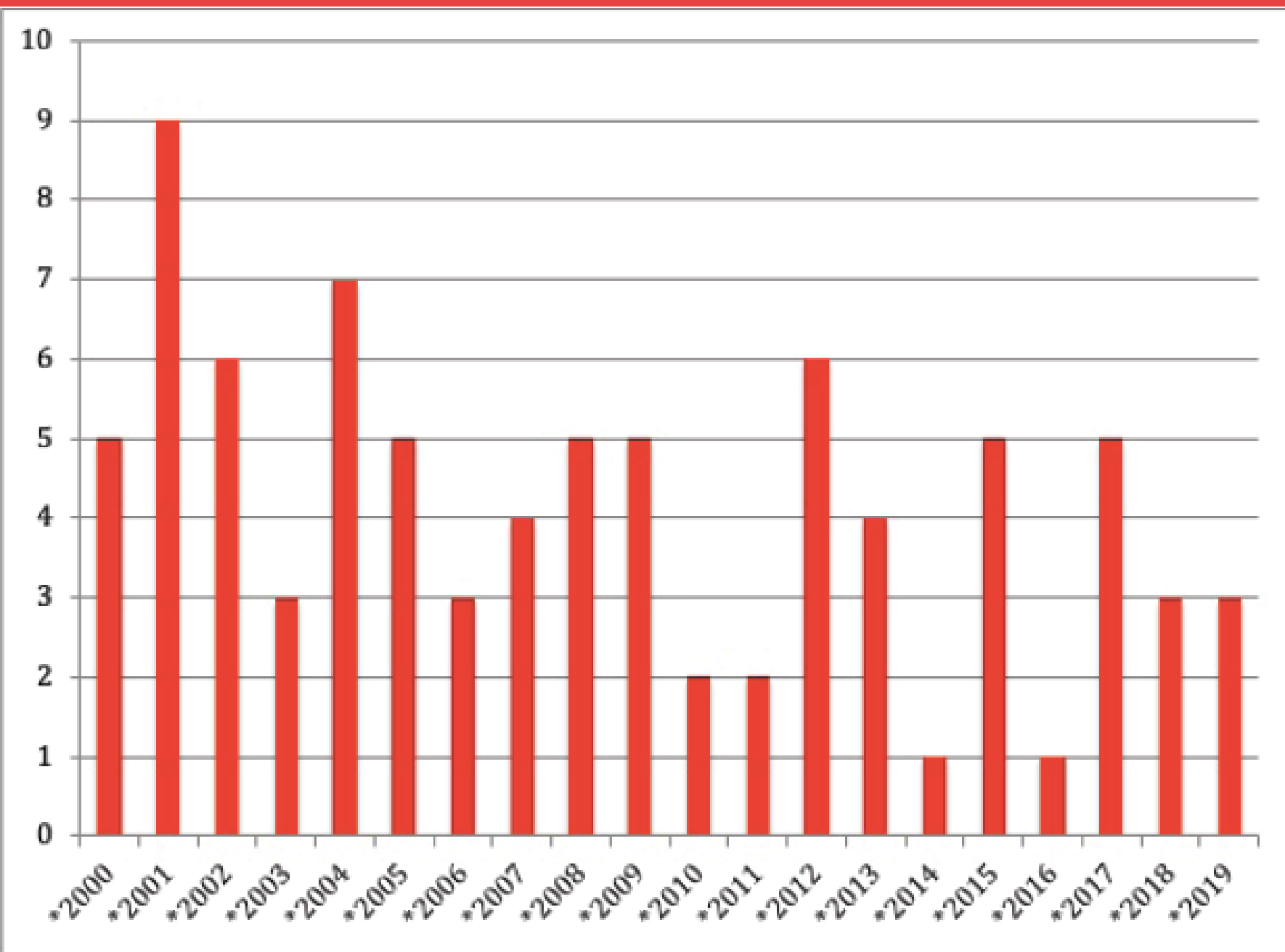
- At the mercy of what was reported in the press
- At the mercy of what was input into BoxRec
- Not reporting on non-fatal catastrophic outcomes





- Based on the data we wanted to focus on
  - Professional Boxing Brain Injury Deaths 2000-2019 (during competition)
  - 428,904 total professional bouts in that time period
- Based on the collection – 100 Total Professional Boxing Deaths
  - 16 of those met criteria for exclusion
    - 8 occurred in training
    - 2 could not be correlated with Box Rec
    - 4 Cardiac Deaths
      - Arrhythmia, MI, Myocarditis
    - 1 Kidney Failure Death
    - 1 Female
      - Mweiase vs Butler (154) – 2014 in South Africa
- N=84 fatalities analyzed

# Number of Deaths Each Year





# Location of Deaths



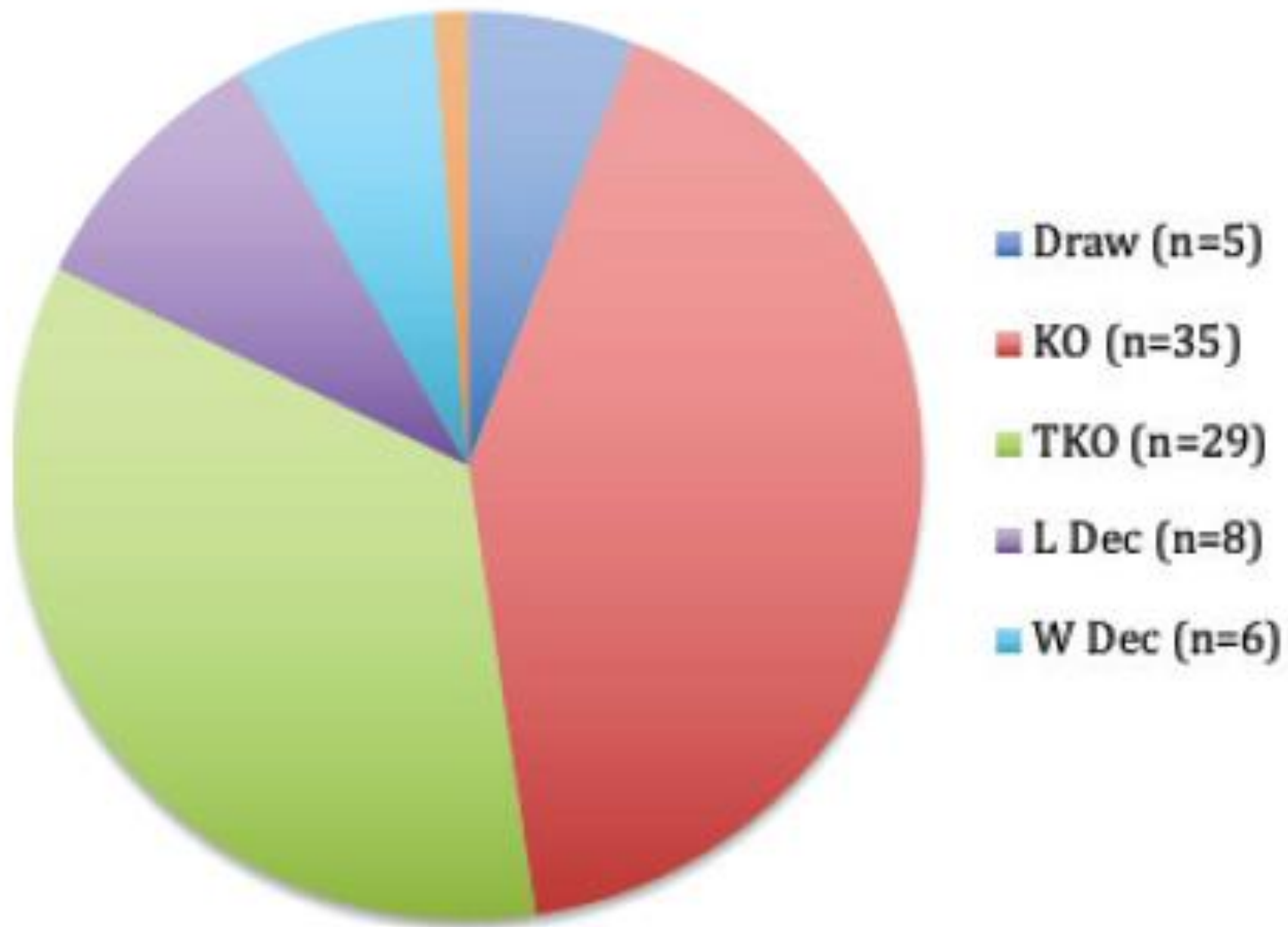
Country	Deaths	Death %
USA	18	21.43%
Indonesia	14	16.67%
Japan	8	9.52%
South Africa	8	9.52%
Mexico	7	8.33%
Philippines	5	5.95%
Argentina	3	3.57%
Australia	3	3.57%
United Kingdom	3	3.57%
Canada	2	2.38%
South Korea	2	2.38%
Thailand	2	2.38%
Columbia	1	1.19%
Dominican Republic	1	1.19%
El Salvador	1	1.19%
Kenya	1	1.19%
Nicaragua	1	1.19%
Nigeria	1	1.19%
Panama	1	1.19%
Russia	1	1.19%
Tahiti	1	1.19%

# Number of Deaths in Each Weight Class

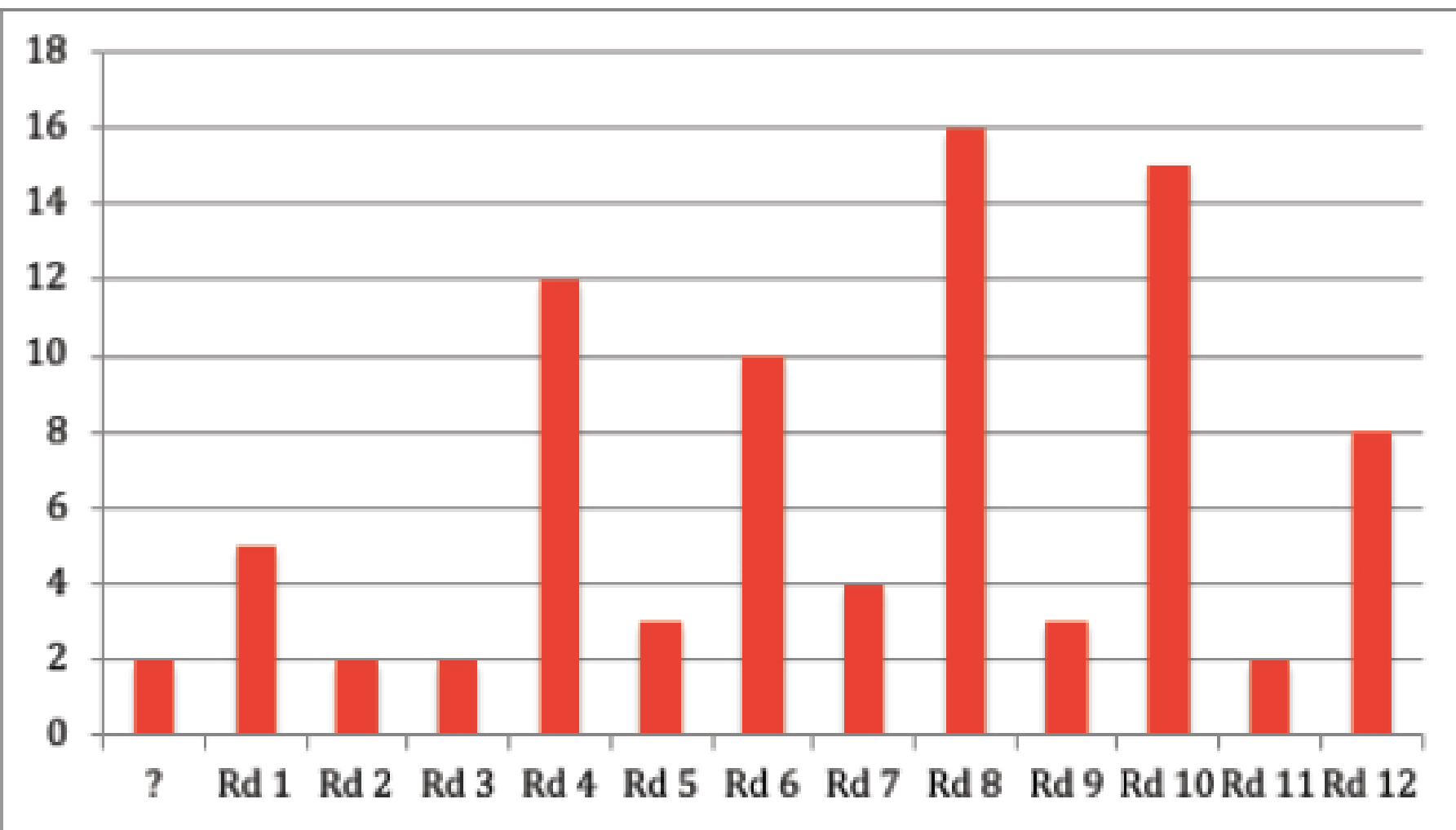


Weight Class	Weight Limit (lbs.)	Deaths	Death %	Total Bouts	Total Bout %
Atomweight	102	0	0.00%	42	0.01%
Minimumweight	105	0	0.00%	6286	1.47%
light flyweight	108	7	8.33%	11637	2.71%
flyweight	112	9	10.71%	17070	3.98%
super flyweight	115	7	8.33%	14374	3.35%
bantamweight	118	5	5.95%	20837	4.86%
superbantamweight	122	7	8.33%	23481	5.47%
featherweight	126	12	14.29%	28664	6.68%
super featherweight	130	6	7.14%	26185	6.11%
lightweight	135	9	10.71%	35915	8.37%
super lightweight	140	7	8.33%	34512	8.05%
welterweight	147	4	4.76%	37305	8.70%
super welterweight	154	1	1.19%	30905	7.21%
middleweight	160	1	1.19%	27330	6.37%
super middleweight	168	0	0.00%	22682	5.29%
light heavyweight	175	4	4.76%	18874	4.40%
cruiserweight	200	1	1.19%	21063	4.91%
heavyweight	HWT	3	3.57%	27342	6.37%
	?	1	1.19%	24400	5.69%
<b>Total</b>		<b>84</b>		<b>428904</b>	

# Bout Outcome and Deaths



# Number of Deaths Each Round





# Total Career Bouts and Deaths

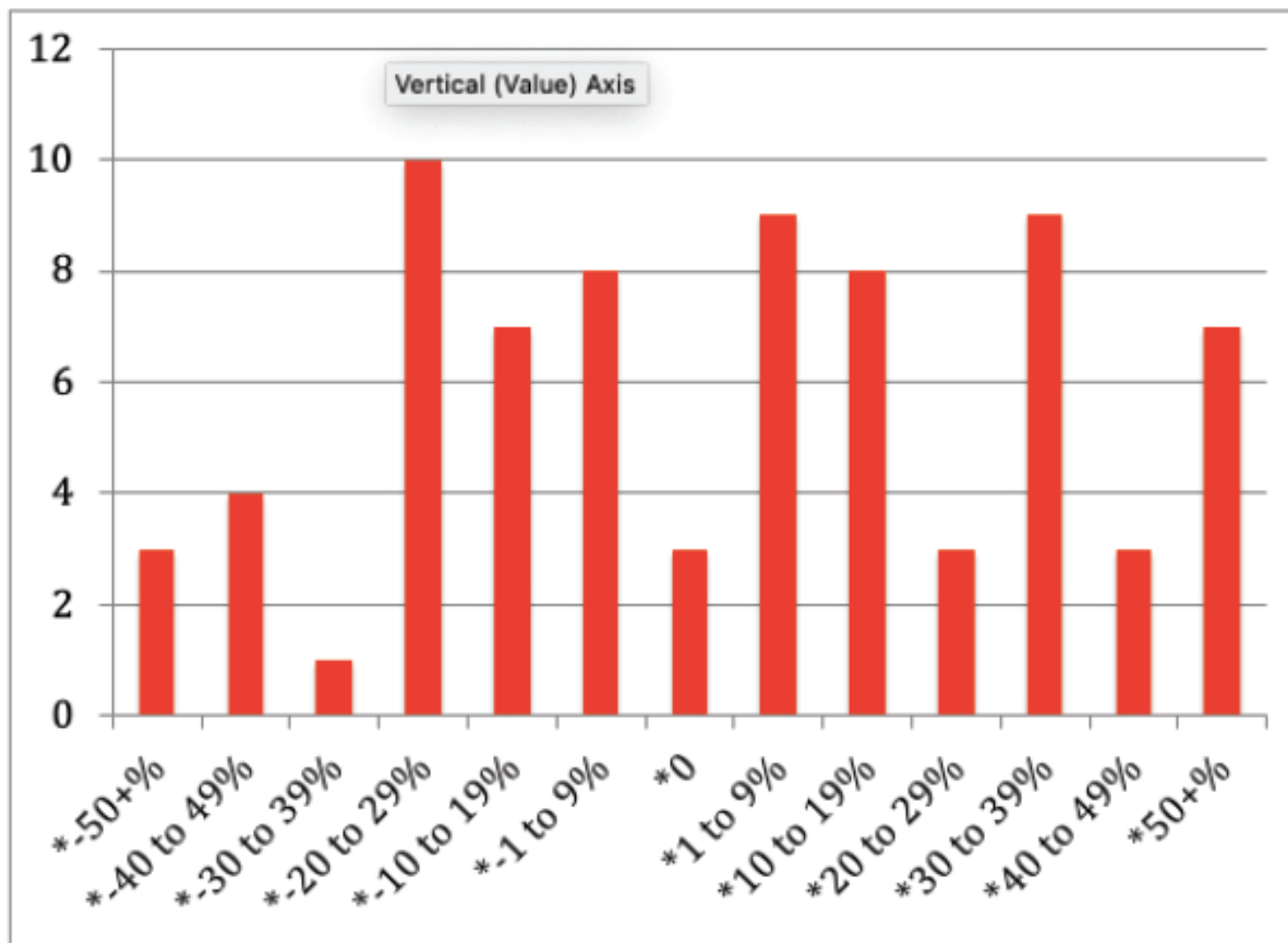


Career Bouts	Deaths
Pro Debut	13
1 to 5	17
6 to 10	10
11 to 15	15
16 to 20	7
21 to 25	10
26 to 30	4
31 to 35	1
36 to 40	5
40+	2
Total	84

# Winning Percentage Difference



*\*Positive difference indicates that the deceased had a worse winning percentage than his opponent. Professional debut vs. professional debut not included.*



# What about MMA???

- 19 deaths involving MMA athletes since 1998
  - Total – bouts, training, pre-bout, ammy, pro
- 8 deaths brain related
  - 3 being in professional regulated bouts





## Summary

- Be vigilant at all times
- Higher Incidence
  - Lower weight-classes
  - Associated TKO/KO
  - Deeper into the fight
- Where do we go from here???



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*Thank You!!!*

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